Durham; but by the energetic labours of Messrs. Clarke and Roebuck this reproach no longer exists, and this very useful handbook to the vertebrate fauna of the shire will, let us hope, be soon followed by a second volume, dealing with the larger and perhaps more difficult portion of its, to use a handy term, invertebrate animals. The number of British vertebrata not occurring in Yorkshire being comparatively small, it seemed desirable to the compilers to make this work not only a county handbook, but a complete nominal catalogue of the British species. In this we think they have done well, for such a catalogue undoubtedly furnishes a ready means of comparison with the faunas of other districts. The classification and nomenclature has in all cases been based upon the most recent or the most reliable authorities as to the extinct British mammalia. It having been considered advisable to include notices of these, or at least of such of these as had ceased to exist in Yorkshire within historical times, the species are inserted in their correct zoological sequence, but their names are printed in Old English characters, and they are left un-numbered, as not being now entitled to rank as true members of the fauna. The same has been done in the case of the Great Auk among the birds. To the catalogue is prefixed an interesting chapter on the physical aspect of Yorkshire, the largest county of the British Islands, containing an area of 3,936,242 statute acres—one which, while most compact in form, is perhaps the most varied in geological structure, soil, climate, and physical aspect. The introductory remarks also on the mammals, birds, reptiles, amphibians, and fishes are well worth perusal. From the general summary, the richness of the Yorkshire fauna can be at once seen, it including 513 out of the 717 known British vertebrates. We gladly recommend this volume to our readers, as in every way an excellent and scientific handbook to the vertebrate fauna of Yorkshire.

LETTERS TO THE EDITOR

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.*

[*The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.*]

Schaeberle's Comet

THIS comet, C 1881, was well seen here on the night of Sunday last, the 21st instant. At 9.30, the night being clear, it was at once detected with the naked eye at a point in the north-west, where lines drawn downward through α and β of Ursa Major (the pointers) and γ and δ of the same constellation would intersect, and just above ψ of Ursa Major, a star of the 3rd magnitude. Owing to the comet's close proximity to the horizon I could not use the 6″ equatorial, but the position must have been very close upon R.A. 11h. and D.N. 47°. The general appearance to the eye was that of a comet with two nuclei, the one in advance of the other. With a 2¼-inch binocular the comet was beautifully sharp and well defined, more so, I thought, than the great southern one when in the same position. The nucleus and star appeared of about the same intensity, but the yellow tint of the latter was strongly contrasted with the almost intense gas blue tint of the former. The tail was well defined, only slightly spreading, and nearly straight, stretching in a line a little to the left of β of Ursa Major, nearly as far as a small triangular group of stars just under β, marked in Maltby's atlas as 44·37 and 246·7. This would give a length of from seven to eight degrees. The tail did not, with the small instrumental power I was using, appear to have any central deficiency of light. The sharpness and brightness of the comet's appearance, as contrasted with the more diffused aspect of the one which has just disappeared, has been remarked upon by several observers.

Guildown, August 22 J. RAND CAPRON

The Descent of Birds

THERE is one passage in the report of Prof. Mivart's lecture on chamæleons (NATURE, vol. xxiv. p. 338) that I cannot allow to pass without demurring to, and that is the suggested probability of a "double origin" for the class Aves. I do not wish at present to raise the issue as to how far the division of all living birds into two groups—"Ratite" and "Carinate"—is, or is not, a natural one; for at present we have not, I think, sufficient information or evidence on the subject to allow of any very definite reply. But any one who is acquainted with the structure of a Tinamu will, I think, be unable to conceive of the many resemblances that group of birds presents to some of the "Ratitæ" as having been developed independently of any genetic connection between the two—and that is what Prof. Mivart's suggestion practically amounts to. That structures so peculiar as feathers—which, as far as we know, are absolutely confined to birds, though universal amongst them—shou'd have been twice over developed, is to me in the highest degree improbable—as improbable, almost, as that the resemblances of the Tunicates and *Amphioxus* to the rest of the Chordata should also be accidental. W. A. FORBES

West Wickham, Kent

Mr. Wallace and the Organs of Speech

IN his article in NATURE, vol. xxiv. p. 244, Mr. Alfred Wallace has given one of the keys to the formation of speech-language. He says, "When we name the *mouth* or *lips* we use labials; for *tooth* and *tongue*, dentals; for the *nose*, and things relating to it, *nasal* sounds; and this peculiarity is remarkably constant in most languages, civilised and savage." Of this he gives examples from Australasia.

Perhaps it may be said there is not much novelty in Mr. Wallace's observations, as many of us have said the same. I have gone over some of his ground in my small "Comparative Philology" in 1852, but I did not hit the point. Indeed what Mr. Wallace gives us is very little, but when it comes to be applied it acquires the highest importance. We have all known that *nose* is often a nasal, but Mr. Wallace distinctly puts it that *mouth* is a labial, *tooth* a dental, and *nose* a nasal. This however gives us by these words and their connections, as stated by Mr. Wallace, a very poor vocabulary, and leaves most of the phenomena of speech-language unaccounted for, and it gives no explanation apparently of the derivation of speech-language from sign- or gesture-language, and the connection of character with both.

Setting Mr. Wallace's illustrations aside—for though they are true, and taken from his own domain, they are not the most apt—we will search farther afield. Chinese will be convenient. In Chinese, for a reason that need not be explained, *mouth* is not now a labial, but in the series connected with it there are many labials. The series is best illustrated by the characters. The old characters are round; the new characters, as in other classes, are now square, conventionally representing the round. Now *mouth* is a round or circle, O (or □). *Ring* is a round or circle O (or □). The character for *mouth* is in fact a *ring*, or round, or circle. On looking for other corresponding characters we have *eye* with O differentiated. Here we get a labial *mu*. *Face* is another round character, and that is *mien*. *Ear*, *head*, *blood*, *pot* (*ming*), *sun*, *moon*, *woman*, *mother* (*mu*), *white* (a labial), *field* or *garden*, *four* are all differentiated forms of each other and of mouth, as we know they ought to be. In cuneiform these characters are round, square, or triangular.

Of many of these psychological relations of words a list or dictionary will be found in the table of equivalents in my "Prehistoric and Protohistoric Comparative Philology." I observed and collected the facts, but did not know the full meaning of them for a long period; and in a paper as yet unpublished by the Biblical Archæological Society I carried the subject still further, particularly as regards cuneiform and Chinese. Indeed, when Mr. Wallace published his article, I had the facts just cited ready for reference in my hand. The reason I did not grasp the solution was this: I have known for years that words forming what I now call ring characters were related to *eye*, and that *eye* is almost a constant in these investigations, equivalent to a molar in various departments of biological research. Indeed it was by the use of *eye* as a constant that I was able to make those numerous and rapid philological analyses which have excited so much distrust among those unacquainted with the process I used.

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I found that if I could classify *eye* in a language under examination, it gave me *sun* and many other words, and it led me to much valuable work, but I was often thrown out for reasons I did not then know. Empirically I found *eye* was a constant, and I knew it was a round, because in many languages east and west *sun* is the day eye or day's eye; *moon* is the night eye, and *eye* the head eye. In the North American languages and in the Malay, for instance, there was the evidence of a common law of psychological philology, which led me to greater results. My knowledge became modified to the extent that *sun* was not day eye, but day round. Until Mr. Wallace's article appeared, I still regarded *eye* as the pivot on which the "round" words and characters turned, although I knew that *mouth* was the prototype of *moon*, *mother*, *woman*, *egg*, &c., and of objects and ideas having a periodicity or a month. Having a false pivot, I was never able to bring the facts into a right connection, although coming very near. The Chinese modifications of the ancient character show that *mouth* and *ring* constitute the primary character, and thereby indicate the primary word.

The researches of Col. Garrick Mallery, U.S.A., and my own, in the paper unpublished, show the connection of sign language and characters, and I have determined a relation between sign language, character, and words, as in the sign or character || for son, offspring, &c. The characters in many cases appear as ancient as the signs, and may have preceded speech language. How words were connected with ideas and their representatives by signs was the problem. The new explanations of Mr. Wallace in your paper, or the old observations of others, in giving explanations from natural cries and sounds, &c., are not always exact, and do not account for the fact that the sounds are in relation with the sign language. Thus the words for *eye* and 2 are the same, and the words for *ear* and 3, and so forth.

In the brief remarks now made I endeavour to steer clear of many things which would require a long explanation, and to bring my observations to bear on Mr. Wallace's article. On speech language being constituted, the application of a labial to *mouth* gave a large series, and so of the dentals, &c. As the numerals are in relation to each object of the universe in primitive symbology, so they were supplied. Indeed nouns, adjectives, pronouns, verbs, numerals, particles, were supplied from a common fount. There are languages constituted of a few differentiated words, which can be traced throughout.

In connection with Mr. Wallace's remarks is to be taken what he says afterwards of the action of the lips. In the sign languages and the characters the lower organs supply a large number of ideas regarded as phallic. Such are ||, ·|·, O, &c. These ideas are not capable of direct connection with sounds; they came however into connection by the acknowledged correspondence of the parts in symbology and mythology. Thus the labial sounds became the representatives of actions or ideas illustrated by the corresponding lower organs, as in *go* and *come*.

Taking Mr. Wallace's terms and applying them, we therefore get the connection established between the sign languages and the speech languages, and we can see the psychological grounds on which they continued in working together, and why the speech languages have not everywhere *always* exterminated their ancestors. For this, and for the whole state of affairs, Mr. Wallace furnishes me with an explanation.

His naked statement is the best, that for *mouth* a labial was used. In the sign languages, and we find this in the prehistoric languages and their equivalents, several signs are used for one idea, and several ideas for one sign. When a labial was applied for the *mouth*, it was indifferent what labial. If one used a *b*, another would use *m*. This is one cause of the variety we find in the prehistoric primary languages, for there never was what philologists are fond of, one primitive language.

Many will object to Mr. Wallace, that *mouth* is not always represented by a labial, and in the common course hold that the negative evidence overcomes the affirmative. In many instances *mouth* is a dental, because the idea includes the *teeth*, which are dental. Again *tongue* is not always a dental, but a sibilant, so far as it is connected with *snake*. It is the whole knowledge of the facts which will better enable us to complete our progress and to overcome difficulties. For myself I have derived particular advantage from Mr. Wallace, in being enabled to understand my own work.

HYDE CLARKE

32, St. George's Square, S.W.

Comets and Balloons

THE notion that the tails of comets are produced by an emission of the nucleus prevails at present among astronomers. I have just stated in a small pamphlet, 8vo, 32 pages, the reason why I presume to entertain another opinion on this subject. The details of my last aërial trip of July 2 show that by using an electric light night ascents at a reasonable distance from the sea may be considered as relatively without danger. The appearance of Schäberle's comet seems to me to afford a proper occasion for testing the emission theory, and I will try to explain my idea as shortly as possible.

It is pretty certain that any comet will lose something of its brilliancy in consequence of passage to the perihelion, consequently, *cæteris paribus*, it must be found with a diminished luminous power in the second part of its track. The consequence is that to test this theory the same comet should be observed in a similar position, as close as possible, in the first and in the second parts of its track.

By ascending with a balloon in the northern hemisphere to inspect Schäberle's comet on a moonless night, and estimating its luminous power in a clear sky at several determined heights, a great step will be made in reaching this desirable end.

It would be for the astronomers of the southern half of the world to ascend under similar conditions, and to make corresponding observations. If no visible diminution is proved to have taken place, much will have been accomplished in the determination of the true nature of this mysterious object.

The same observations could, it is true, be prosecuted without the help of aërostation, but not with the same amount of certainty, as much doubt remains as to the true luminosity of a celestial body when it is not inspected in a really perfectly clear sky, which can always be procured with a balloon—it is true not without incurring some personal risk, certainly not out of proportion, at all events, to the results to be expected.

W. DE FONVIELLE.

Animal Instinct

I AM exposed to some annoyance from a clever old donkey, who, being turned out on to the green in front of my house, constantly lets himself into my garden to graze on my lawn. This he effects by pushing his nose between the rails of an iron gate, and then pressing down the latch of the gate. Expulsion, with ever so striking an appeal to his feelings, avails only a short time for his exclusion, unless the gate is locked.

Little Park, Enfield, August 19 W. B. KESTEVEN

ITALIAN DEEP-SEA EXPLORATION IN THE MEDITERRANEAN

AFTER my communication of the 4th inst. from Asinara I feel sure that many readers of NATURE will be interested to know something more of our doings; so I take the opportunity of our short stay here to send a very brief account of our doings since leaving Asinara.

The presence of a deep-sea fauna in the Mediterranean which I announced in my last is fully confirmed, and even though most of the species dredged are as yet undetermined, I can venture to say that the character of this fauna is "Atlantic," and, I may add, "Oceanic." My first bit of news was the capture of a *Willemœsia* identical, or very nearly allied, to *W. leptodactyla*; since then some ten or twelve specimens of that most interesting and characteristic Crustacean have been secured off the west, south, and east coasts of Sardinia, in depths varying from 950 to 2145 metres. All our deep hauls have brought up some living animals, usually Annelids and deep-red shrimps of at least three species; the greatest depth we have trawled in is 3115 metres; the greatest we have found sounding is 3630 metres in the eastern basin between Sardinia and Naples.

On the 10th inst., off the west coast of Sardinia we dredged two specimens of a Macrurid fish, which I take to be a *Malacocephalus*, from depths of 2805 and 2908 metres. South of the Gulf of Cagliari we got a new—to me—and exceedingly remarkable Macrurid, with what

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